

Silver-Copper-Manganese-Nickel-Zinc Alloys

Safety Data Sheet

1. Product and Company Identification

Suppliers and Manufacturers

Lucas Milhaupt, Inc.
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www.lucasmilhaupt.com

Emergency Phone Number

Chemtrec: 800-424-9300

SDS Number: 75

Product Codes: 32-252; 32-491; 32-495; 38-215; 38-245; 38-259, 38-299;
38-490; 39-259

Product Use(s): Alloys for brazing and other metallurgical processes

2. Hazards Identification

Classification(s)

Skin Sensitization: Hazard Category 1B
Carcinogenicity: Hazard Category 2
Specific Target Organ Toxicity,
Repeated Exposure: Hazard Category 2
Specific Target Organ Toxicity,
Single Exposure: Hazard Category 3

Label Symbol(s): Health Hazard, Exclamation Point

Label Signal Word(s): Warning

Label Hazard Statement(s)

May cause respiratory irritation.
May cause an allergic skin reaction.
Suspected of causing cancer by inhalation.
May cause damage to the nervous system and/or respiratory system through
prolonged or repeated exposure via inhalation.

Label Precautionary Statement(s)

Do not handle until all safety precautions have been read and understood.
Obtain special instructions before use. Store locked up.
Do not breathe dust or fume.
Do not eat, drink, or smoke when using the product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
If skin irritation or rash occurs, get medical advice or attention.
If exposed or concerned or if you feel unwell, get medical advice/attention.

IF ON SKIN: Wash with plenty of water. Wash contaminated clothing before
reuse. Contaminated work clothing must not be allowed out of the workplace.



IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a Poison Control Center or doctor if you feel unwell.

Dispose of contents and container in accordance with applicable regulations. 25-86% of the products consist of ingredients of unknown acute toxicity.

WARNING: These products contain a chemical(s) known to the State of California to cause cancer.

3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Copper	7440-50-8	16-62	None known
Manganese	7439-96-5	1-8	None known
Nickel	7440-02-0	<1-5	None known
Silver	7440-22-4	24-49	None known
Zinc	7440-66-6	9-44	None known

4. First Aid Measures

Eye

Flush affected areas with water for at least fifteen minutes. Seek medical assistance if necessary.

Skin

Remove contaminated clothing. Wash affected area with large quantities of water for at least five minutes. Seek medical attention if necessary. Launder or dry-clean clothing before reuse.

Ingestion

If subject is conscious, induce vomiting. If unconscious or convulsive, seek immediate medical assistance. Do not give anything by mouth to an unconscious or convulsive person.

Inhalation

If signs and symptoms of toxicity are observed, remove subject from area, administer oxygen, and seek medical attention. Keep the subject warm and at rest. Perform artificial respiration if breathing has stopped.

Note to Physician

None of the components are acutely toxic by ingestion, nor are they absorbed through the skin. Long-term chronic exposure may cause argyria and contact and/or allergic dermatitis.

5. Fire Fighting Measures

Fire and Explosion Hazards

These products are non-flammable and non-explosive. If present in a fire or explosion, they may emit fumes of the constituent metals or their oxides.

Extinguishing Media

Use dry chemical. Do not use water.

Fire Fighting Instructions

If fighting a fire in which these products are present, wear a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode.

6. Accidental Release Measures

Methods and Materials

If a finely-divided form of product is spilled, clean up spillage so as to minimize dispersion of dust. Either wet sweeping or vacuuming using HEPA filtration is recommended.

Personal Precautions

Avoid contact with skin, eyes, and mucous membranes.

Environmental Precautions

Prevent spills from entering sewers or contaminating soil.

7. Handling and Storage

Handling Precautions

No special handling precautions are required.

Work and Hygiene Practices

To prevent ingestion following use of the product, wash hands and face before eating, drinking, applying cosmetics, or using tobacco. Remove contaminated clothing or protective equipment before entering eating/drinking areas.

Storage Precautions

Do not store in proximity to incompatible materials (see Section #10).

8. Exposure Controls and Personal Protection

Ingredients - Exposure Limits

Copper

ACGIH TLVs: 0.2 mg/m³ TWA (fume); 1 mg/m³ TWA (dusts and mists)

OSHA PELs: 0.1 mg/m³ TWA (fume); 1 mg/m³ TWA (dusts and mists)

Manganese

ACGIH TLVs: 0.02 mg/m³ TWA (respirable); 0.1 mg/m³ TWA (inhalable)

OSHA PEL: 5 mg/m³ "Ceiling"

Nickel

ACGIH TLV: 1.5 mg/m³ TWA

OSHA PEL: 1 mg/m³ TWA

Silver

ACGIH TLV: 0.1 mg/m³ TWA (metal)

OSHA PEL: 0.01 mg/m³ TWA

Zinc

ACGIH TLVs (as ZnO): 2 mg/m³ TWA; 10 mg/m³ STEL (respirable fractions)

OSHA PEL: 5 mg/m³ TWA (as respirable fraction of ZnO dust or fume)

Ingredients - Biological Limits

Copper

No ACGIH BEI(s) or other biological limit(s)
Manganese
No ACGIH BEI(s) or other biological limit(s)
Nickel
No ACGIH BEI(s) or other biological limit(s)
Silver
No ACGIH BEI(s) or other biological limit(s)
Zinc
No ACGIH BEI(s) or other biological limit(s)

Engineering Controls

Use dilution or local exhaust ventilation adequate to maintain concentrations of all components and their byproducts to within their applicable standards.

Eye/Face Protection

Wear eye protection adequate to prevent eye contact with the product and injury if the products are used with a flame. Plastic-frame spectacles with side shields and filter lenses (shade #3/#4) are recommended.

Skin Protection

Wear protective gloves and clothing to prevent skin injuries if the products are used with a flame and/or for prolonged or repeated contact with finely-divided forms of product. Avoid flammable fabrics.

Respiratory Protection

If an exposure level to a component(s) exceeds an applicable standard, use a NIOSH-approved respirator having a configuration (facepiece, filter media, assigned protection factor, etc.) effective for the concentration of the component(s) generated. For guidance on selection and use of respirators, consult American National Standard Z88.2 (ANSI, New York, NY 10036, USA).

9. Physical and Chemical Properties

Appearance: yellow-white metals, various forms
Odor: none
Odor threshold: not applicable
pH: not applicable
Melting Point: not determined
Freezing point: not applicable
Boiling point/boiling range: not determined
Flash Point: not applicable
Evaporation Rate: not applicable
Flammability Class: not applicable
Lower Explosive Limit: not applicable
Upper Explosive Limit: not applicable
Vapor pressure: not applicable
Vapor density: not applicable
Relative density (H₂O): not determined
Solubility (H₂O): insoluble
Oil-water partition coefficient: not applicable
Autoignition Point: not applicable
Decomposition temperature: not applicable
Viscosity: not applicable

10. Stability and Reactivity

Reactivity: none reasonably foreseeable

Stability: stable

Hazardous Polymerization: will not occur

Risk of Dangerous Reactions: see "Conditions to Avoid"

Conditions to Avoid

Silver and copper can form unstable acetylides in contact with acetylene gas.

Incompatible Materials

Acetylene; ammonia; azides; nitric acid; halogens; ethylene imine; ethylene oxide; chlorine trifluoride; sulfuric acid; peroxides; peroxyformic acid; oxalic acid; tartaric acid; 1-bromo-2-propyne; permonosulfuric acid; hydrazine mononitrate; hydrazoic acid; hydrogen sulfide; bromates, chlorates, and iodates of alkali and alkali earth metals; hydroxylamine; selenium; tellurium; carbon disulfide; nitrates; hydrazine; dioxane; performic acid; phosphorus; sulfur; titanium plus potassium perchlorate; nitrogen dioxide; sulfur dioxide.

Hazardous Decomposition Products

Heating to elevated temperatures may liberate metal/metal oxide fumes.

11. Toxicological Information

This product has not been subject to toxicological testing by the manufacturer/supplier.

Ingredients - Toxicological Data

Copper
 LD50: No data available LC50: No data available
Manganese
 LD50: 9,000 mg/kg (oral/rat) LC50: No data available
Nickel
 LD50: 5,000 mg/kg (oral/rat) LC50: No data available
Silver
 LD50: >2,000 mg/kg (oral/rat) LC50: No data available
Zinc
 LD50: No data available LC50: No data available

Primary Routes(s) of Entry

Ingestion; inhalation.

Eye Hazards

Eye contact with these products in finely-divided forms may cause irritation, conjunctivitis, ulceration of the cornea, and/or argyria, a permanent gray discoloration of the eyes, skin, mucous membranes, and respiratory tract.

Skin Hazards

Skin contact with these products, particularly in finely-divided forms, may cause irritation, argyria, discoloration, and contact and/or allergic dermatitis.

Ingestion Hazards

Ingestion of these products in finely-divided forms may cause nausea, vomiting, and gastrointestinal irritation.

Inhalation Hazards

Inhalation of toxicologically-significant quantities of the components is unlikely when the product is used in accordance with instructions and specified protective measures (see Section #8). Chronic exposure to manganese dust or fume via inhalation may cause manganism, a disease of the central nervous system characterized by sleeplessness, muscle weakness, mental confusion, and spastic responses.

Symptoms Related to Overexposure

Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation overexposure, particularly as fume.

Delayed Effects from Long Term Overexposure

Chronic overexposure by inhalation may aggravate pre-existing diseases of the liver, kidneys, gastrointestinal system, respiratory system, and nervous system.

Carcinogenicity

Nickel is classified as a potential human carcinogen by IARC ("2b", possibly carcinogenic to humans) and NTP ("K", known to be a human carcinogen). Exposure to some compounds of nickel has been shown to increase the risk of various cancers, although these effects have not been demonstrated among individuals occupationally exposed only to nickel metal. ACGIH classifies nickel metal as "A5" (not suspected as a human carcinogen).

Germ Cell Mutagenicity

The product contains no chemicals known to be germ cell mutagens.

Reproductive Effects

Limited evidence from human occupational exposure suggests that manganese is capable of damaging male fertility.

Acute Toxicity Estimates

LD50 (oral): >2,000 mg/kg
LD50 (dermal): no data available
LC50: no data available

Interactive Effects of Components: no data available

12. Ecological Information

No ecological data is available for the product. Available ecological data for the components is as follows:

Copper

No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Manganese

No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Nickel

Aquatic Toxicity: LC50 >100 mg/liter for 4 d. (Freshwater fish)
Aquatic Toxicity: EC50 >100 mg/liter for 48 hrs. (Daphnia)
Aquatic Toxicity: EC50 = 0.18 mg/liter for 3 d. (Algae)
No data available for Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

Silver

No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Zinc

No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Ozone Depletion Potential: This product contains no ingredients listed in the Annexes to the Montréal Protocol on Substances that Deplete the Ozone Layer.

13. Disposal Considerations

Do not discharge waste product into sanitary or storm sewers or allow it to contaminate soil. Consult applicable Federal, State/ Provincial, and local regulations.

14. Transport Information

Transport is not regulated by USDOT, TDG (Canada), IATA, or IMO.

15. Regulatory Information

United States Regulatory Information

All components of this product are listed on the EPA's TSCA inventory.

SARA Hazard Classes: Acute Health Hazard; Chronic Health Hazard

Ingredient(s) - U.S. Regulatory Information

This product contains the following ingredients in concentrations greater than 1% (for carcinogens 0.1%) regulated under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 or 40 CFR 372.

1. Copper (CASRN 7440-50-8)
2. Manganese (CASRN 7439-96-5)
3. Nickel (CASRN 7440-02-0)
4. Silver (CASRN 7440-22-4)

Ingredients - State Regulations

Nickel: California Proposition 65 listed chemical

Canadian Regulatory Information

All components of these products are listed on either the Domestic Substances List (DSL) or the Nondomestic Substances List (NDSL).

WHMIS Class(es) and Division(s): D2A, D2B
Component(s) on Ingredients Disclosure List:

1. Copper, elemental (CASRN 7440-50-8)
2. Manganese, elemental (CASRN 7439-96-5)
3. Nickel, elemental (CASRN 7440-02-0)
4. Silver, elemental (CASRN 7440-22-4)

This product has been classified according to the hazard criteria of the CPR and this SDS contains all of the information required by the CPR.

16. Other Information

----- HMIS Ratings

Health - 2* (moderate chronic hazard)
Flammability - 1 (slight hazard)
Physical Hazard - 0 (slight hazard)
PPE - see Note

Note: Lucas-Milhaupt, Inc. recommends use of protective eyewear and gloves (Personal Protection Index "B") as standard PPE. HMIS recommends that its ratings be used only in conjunction with a fully implemented HMIS program, and that specific PPE codes be created by the user, who is familiar with the actual conditions under which the product is used. We cannot anticipate every condition of the product's use, and it is the user's responsibility to evaluate the hazards pertinent to its specific operations, and to determine the specific PPE required.

NFPA Ratings

Health - 2 Flammability - 1 Reactivity - 0

Preparation Information

Date of Preparation:
Date of Prior SDS: 20 November 2012

Disclaimer

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Lucas-Milhaupt, Inc.